

GENERAL SUBJECT:		NUMBER:	
Asphalt Concrete Mixture		MD 252-05	
SPECIFIC SUBJECT:		DATE:	
Checking Temperatures of HMA at Job Site and Plant May 18, 2005		May 18, 2005	
DIRECTED TO:	SIGNATURE:		
District Administrators	Andrew Mergenmeier, PE		
	Signature on original co	Signature on original copy of memorandum	

The method of checking Hot Mix Asphalt at the job site is amended to allow the use of an infrared thermometer when a hole is not available in the body of the hauling truck. The infrared thermometer will provide an instantaneous measurement in a safe manner.

Sec. 503 Road Sampling, Testing and Inspection of Asphalt Pavements

The introductory paragraph for this section is replaced with the following:

The following instructions cover the sampling, testing, and inspection of asphalt concrete pavements at the job site. Specific instructions are contained herein for the density, depth and temperature measurements. See Sec. 206 for Independent Assurance sampling requirements.

Sec. 503.04(a) Initial Duties of Inspector

The fourth or last paragraph is replaced with the following:

The Project Inspector should take and record temperature measurements of the asphalt concrete at the beginning of paving operations and thereafter at a rate of not less than one measurement every hour. The inspector may increase the frequency of temperature measurements at any time. The temperature should be checked using an appropriate heat-sensing device (i.e. probe thermometer, infrared thermometer, etc.).

The Inspector should use the following procedure to measure the temperature of asphalt concrete at the job-site:

- 1) When using a mechanical or digital probe thermometer, it should be inserted into the asphalt concrete through an appropriate hole in the bed of the delivery truck. The thermometer should be allowed to stabilize (this may take a minute or more) and the temperature recorded. The Inspector will ensure the asphalt temperature is not less than the specified minimum laydown temperature for the mix (Section 315 in the Road & Bridge Specifications) nor higher than 350° F.
- 2) Once the measured/recorded asphalt temperature is found to be within specifications, the Inspector will inform the delivery driver and allow the load to be emptied into the paver or Material Transfer Vehicle (MTV) hopper for use on the project.
- 3) If the initial temperature measurement is not within specifications, or the delivery truck bed does not have an appropriate hole in the side, the Inspector will take four (4) additional temperature measurements using an infrared device. The Inspector should direct the delivery driver to raise the truck bed a few feet such that the majority of the asphalt in the load is visible, and only a minimal amount of material is dumped into the paver or MTV hopper.
 - a) The Inspector will then measure and record the temperature at four (4) different locations within the bed of the truck. The center points of these measurements should be several feet apart to account for the area over which the infrared device takes its measurements (generally a 1–1.5 foot diameter area at a distance of 10 feet). The average of these four (4) readings will be considered the temperature of the load.

The load is accepted for use on the project if the load's temperature is not less than the minimum laydown temperature nor higher than 350° F. Additionally, not more than one of the four infrared temperature readings may be outside of specification limits for the load to be accepted for use on the project.

Note: care must be taken not to record temperatures from the asphalt material exposed to ambient air and wind during transport to the project site.

- b) Once the asphalt temperature has been measured/recorded and found to be within specifications, the Inspector will inform the delivery driver that the remainder of the load may be emptied into the hopper for use on the project.
- c) If an excessive amount of rejected material is dumped into the hopper, the contractor may be instructed to remove the material prior to continuing paving operations.

Nothing, herein, regarding temperature measurement should be taken as requiring acceptance of loads of asphalt concrete that have crusts of cooler material that would remain in clumps as the material moves through the paver. If a MTV with re-mixing capability is being used, clumps of cooler material should be of lesser concern.

To establish consistency between the number of temperature measurements and the calculation of the average temperature before rejection of material at the job site and the plant, section 502.04 (2) was also modified.

Section 502.04 (2) Temperature Measurements

The first paragraph is replaced with the following:

The Producer is to take initial temperature measurements on the first and fifth loads of each type mix of each production day, after which at least one measurement should be made every hour (approximately) of production time for each mix type. Measurements made at the time of quality control sampling will suffice for one of the one-hour measurements. If, when measuring the temperature of an asphalt mixture, it is found to be outside of temperature tolerances, a minimum of 3 additional measurements will be taken from different points of the load. The 4 readings will be averaged and the average used as the temperature of the load or batch, providing that not more than one of the readings is outside specification limits. If more than one of the measurements is outside of the limits, the load or batch shall not be shipped. All temperature measurements and the average shall be recorded.

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